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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,644	04/14/2000	David F. Sorrells	1744.0010009	9317

7590 01/24/2007  
Sterne Kessler Goldstein & Fox PLLC  
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1100 New York Avenue NW  
Washington, DC 20005-3934

EXAMINER
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BHATTACHARYA, SAM

ART UNIT	PAPER NUMBER
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2617

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/550,644	SORRELLS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sam Bhattacharya	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 13-74 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-12 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>see 1449</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-4 and 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US 6,404,758) in view of Mower (US 5,063,387).

Regarding claim 1, Wang discloses an apparatus and method for down-converting an electromagnetic signal, including simultaneously down-converting and performing a matched filtering/correlating operation by RF circuit 115 and matched filter 130 on a portion of a signal; accumulating the result of the matched filtering/correlating operation by accumulator 140, and repeating the matched filtering/correlating and accumulating steps for additional portions of the carrier signal, whereby the accumulation results form a down-converted signal. See FIG. 2, col. 3, 7-20 and col. 5, line 54 – col. 6, line 5.

Wang fails to disclose that the down-converting and matched filtering is performed on a portion of a carrier signal. However, in an analogous art, Mower discloses a circuit in which a down-converter 13 and a matched filter 23 performs down-converting and filtering, respectively, on a portion of a carrier signal. See FIG. 1 and col. 3, line 54 – col. 4, line 11. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus and method in Wang by incorporating the above-cited teaching in Mower for the purpose of making the signal convenient for receiver circuitry and providing a data signal to produce a compensated Doppler frequency.

Art Unit: 2617

Regarding claim 2, Wang discloses that the matched filtering/correlating operation includes the step of convolving an approximate half cycle of the carrier signal with a representation of itself. See col. 11, lines 1-13.

Regarding claims 3 and 4, Wang discloses that the matched filtering/correlating operation includes the step of multiplying by multiplier 247 an approximate half cycle of the signal by itself over a predetermined time interval and integrating by integrator 290 over a predetermined time interval. See FIG. 3b and col. 9, lines 12-36. Moreover, claim 4 recites an equation which corresponds to the limitations of claim 3, and is therefore rejected for the same reasons as claim 3.

Regarding claims 6 and 7, Wang discloses that the accumulating step includes transferring a portion of the energy contained in an approximate half cycle of the signal to an energy storage device or a capacitive storage device. See col. 2, lines 59-67.

Regarding claims 8 and 9, Wang discloses passing on the accumulation result to a reconstruction filter, which is an interpolation filter. See col. 2, lines 38-49.

Regarding claim 10, Wang discloses repeating the matched filtering and accumulating steps at a sub-harmonic rate  $(k+1)$  of the signal. See FIG. 4 and col. 10, lines 30-41.

Regarding claim 11, Wang discloses repeating the matched filtering and accumulating steps at an off-set  $(k+2)$  of a sub-harmonic rate of the signal. See col. 10, lines 42-49.

Regarding claim 12, Wang discloses performing matched filtering and accumulating for positive approximate half cycles  $(k+1)$  of the carrier signal and for inverted negative approximate half cycles  $(k-1)$  of the signal. See col. 11, lines 26-46.

***Allowable Subject Matter***

3. Claims 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the claim is objected to for the reasons stated in the previous Office action.

***Response to Arguments***

4. Applicant's arguments filed on 10/4/06 have been fully considered but they are not persuasive.

Examiner respectfully disagrees with Applicant's assertions.

RF circuit 115 in Wang and matched filter 130 perform simultaneous down-conversion and matched filtering on a portion of a signal. Moreover, down-converter 13 in Mower and a matched filter 23 performs down-converting and filtering, respectively. Accordingly, simultaneous down-conversion and matched filtering is performed in both Wang and Mower as explained in the rejection.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

Art Unit: 2617

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Bhattacharya whose telephone number is (571) 272-7917. The examiner can normally be reached on Weekdays, 9-6, with first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sb

  
GEORGE ENG  
SUPERVISORY PATENT EXAMINER